

Profile

a guide to military careers



Reserves

An important part of our national force

January 1987



PROFILE'S March issue features a story on Air Force navigational aid maintenance. It also includes articles on the Army's Patriot Missile, the Coast Guard's damage controlmen, the Marine Corps' body repair mechanics and the Navy's gunner's mates.



Deputy Director

Maj. Stephen W. Kerrick, USA

Managing Editor

Staff Sgt. John Black, USMC

Editors

Staff Sgt. Karen Murdock, USA

Staff Sgt. Linda Mitchell, USAF

Petty Officer 2nd Class

Rick Johnson, USN

Circulation

Tech. Sgt. Gerry Johnson, USAF

PROFILE (USPS 457-490) is published monthly November through April by the High School News Service.

This magazine is designed to inform young people and guidance personnel about benefits, opportunities, privileges and programs of military service.

The Secretary of the Navy has determined that the publication of the periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this publication was approved by the Office of Management and Budget, Dec. 2, 1980.

Reproduction of articles and supporting photographs is authorized provided proper credit is given.

Inquiries may be directed in writing to:

DOD High School News Service

PROFILE

Bldg. X-18

Norfolk, VA 23511-6698

Phone:

Commercial (804) 444-2828

AUTOVON 564-2828

Second class circulation paid at Norfolk, Va., and at an additional mailing office at Mechanicsburg, Pa.

Profile

a guide to military careers

Vol. 30 No. 4

February 1987

4 Reserves—An important part of our total force

7 Newsbriefs

8 Turret Men

10 Tidbits and Technology

11 Coast Guard's Security Forces

12 Weekend Drill

14 Flying Filling Stations

16 Weather Watchers

18 Anchors Aweigh

20 Freedom's Birthplace

22 Aircraft Arrest!

About the covers

Front: Illustration by Karen Murdock

Back: A drill sergeant explains the operating procedures for the M72A2 Light Antitank Weapon (LAW) to an Army Reserve member of the 4th Training Brigade.



Reserves

An important part of
our total force

by Karen Murdock

They can be found all over the country, from the smallest town to the largest city. Their professions vary from doctors and lawyers to factory workers and secretaries. Neighbors may wonder why these men and women sacrifice their time to become "weekend warriors," assuming military duties in the U.S. Reserves.

These people serve their country "part time" in the U.S. Reserve components of the Air Force, Army, Marine Corps, Navy and Coast Guard. Reservists are immediately available for active duty if a national emergency is declared.

Reserve members are required to attend the once-a-month training drills held during weekend sessions. In addition to the monthly weekend duty, Reservists also attend an annual training period of from 12 to 17 days, normally scheduled during the summer.

During the annual training periods, Reservists may get the chance to see different parts of the country or the world. For example, members of the 363rd Adjutant General Detachment (Postal) from Rome, Ga., got the opportunity to experience life in Germany as they worked in the largest Army post office located in Offenbach, near Frankfurt. Marine Corps Reservists from Marine Air Base Squadron-41, Memphis, Tenn., and the Marine Aircraft Group-42, Alameda, Calif., went to the Crash and Fire Rescue unit at Marine Corps Air Station at Futenma, Japan. Members of the Naval Reserve unit, Mobile Technical Unit Two from Great Lakes, Ill., performed their annual training at Norfolk Naval Base, Norfolk, Va.

For all weekend and annual training sessions, Reservists receive the same pay and benefits of any active-duty service member. Reservists may also be eligible for civilian educational benefits. (These educational benefits may vary slightly with each service or with the Reservist's status. More information is available at local Veterans Administration offices.)

People who must take time off from their civilian jobs to perform their Reserve duties have special employment protections. Congress has stated that a Reserve member is entitled, upon request, to an unpaid leave of absence from his or her civilian job to participate in training. An employer can't force an employee to use vacation time to attend the mandatory training. However, Reservists also have obligations to their employers, such as informing the employer of the training schedule as far ahead as possible and returning to work immediately after training has been completed.

Air Force Reserves

To enlist in the Air Force Reserves, non-prior service applicants must be at least 17 and must not have reached their 35th birthday, according to Technical Sgt. Jim Schiek, Air Force Reserve recruiter in Norfolk, Va.

"After enlisting, personnel attend six weeks of basic training at San Antonio, Texas, and then go on to their individual skill training," Schiek explained. "Af-

ter completing their initial active duty, Reservists return to their local unit.

"Some of the training available to Reservists include tactical air support, tactical and military airlift, civil engineering, electronics, rescue and medical missions," Schiek said. "Women are eligible for all Air Force Reserve positions except for those that are combat-related."

Army Reserves

"Men and women, 17 to 34 years old may enlist in the Army Reserve," said Linda Calligan, a Reserve recruiting specialist in Norfolk, Va. "Most career fields, except those that are combat related, are open to women."

"Qualified high school students can enlist in the Army Reserve during their junior year, attend basic training during the summer, return to school and graduate, then go on to their skill training," Calligan explained. "This program is also available in the Navy, Marine Corps and Coast Guard."

Reserve trainees attend basic training with active duty service members at one of the following basic training sites: Fort Benning, Ga.; Fort Knox, Ky.; Fort Sill, Okla.; Fort Bliss, Texas; Fort Leonard Wood, Mo.; Fort McClellan, Ala.; Fort Dix, N.J.; or Fort Jackson, S.C. After completing basic training, they go on to their individual skill training. This initial training is all active duty time for the Reservists.



An Air Force Reserve mechanic watches as Air Force jets take to the sky. (U.S. Air Force photo)

Marine Corps Reserves

Persons 17 to 28 years of age can enlist in the Marine Corps Reserves. "People enlisting east of the Mississippi go to basic training at Parris Island, S.C., while those enlisting in the west attend basic training in San Diego," explained Staff Sgt. Larry Loutzenheiser, a Marine Corps recruiter in Norfolk, Va.

"To be a Marine Reservist or active duty Marine, both men and women must complete 11 weeks of basic training. After basic is completed, everyone goes on to receive their formal skill training," Loutzenheiser said. "The length of the formal training depends on the career field."

Naval Reserves

"There are plenty of opportunities for people who want to get into the Naval Reserves," said Petty Officer 1st Class Don Freeman, a Reserve recruiter in Norfolk, Va.

"Men and women, 17 to 34 can enlist in the Active Mariner Program, the Training and Administration of Reserves (TAR) Program or the Sea and Air Mariner Program (SAM). Each of these programs require an 8-year enlistment.

"Under the Active Mariner Program, Reservists serve three years on active duty and are then assigned to a local Naval Reserve drill site. In the TAR program, Reservists complete four years active duty and are then assigned to the Individual Ready Reserve or may choose to join a Ready Reserve unit," he explained.

"Reservists in the SAM program spend four to 10 months on active duty for their initial training and then return to a designated local Reserve unit for the remainder of their enlistment. This is the most popular program," Freeman said.

Naval Reserve trainees go through basic training at either Orlando, Fla., San Diego, or Great Lakes, Ill. (All women enlisting in the Navy, active duty and Reserves, complete basic training in Orlando.)



Navy service members load Army vehicles aboard ship during a joint Army/Navy exercise. (Photo by John Black)

Coast Guard Reserves

Qualified persons between the ages of 17 and 27 without military experience can enlist for eight years. This includes active duty for basic training and skill schooling. After this initial active duty, the Reservist returns to the home unit for once-a-month training.



A Marine Corps Reservist fires the GAU/2B machine gun from a UH-1 Iroquois helicopter gunship. (U.S. Marine Corps photo)

Names added to Vietnam Memorial

The names of 96 Vietnam veterans who died outside the defined Southeast Asia combat area have been added to the Vietnam Veterans Memorial in Washington, D.C. The Vietnam Veterans Memorial Fund originally included the names of only those who died within a fixed geographical area.

The Defense Department recently decided to include those who died on combat missions or in direct support of such missions, while enroute to or returning from a target in the combat area.

The names of more than 58,000 other U.S. service members are already engraved on the memorial. The 246-foot, V-shaped granite wall was built in 1982 using private donations. It was dedicated Nov. 13, 1982. In 1984, a sculpture of three soldiers was added, facing the wall from across an open, sloping field. The memorial was transferred to the U.S. government on Nov. 11, 1984, and is now administered by the National Park Service.

Speak up please

Soldiers may now speak loud and clear while wearing the M-17 protective mask thanks to AudioPack, a new mask communications device. The device is a snap-on microphone with a rugged, portable loud-speaker that fits on the small of the back.

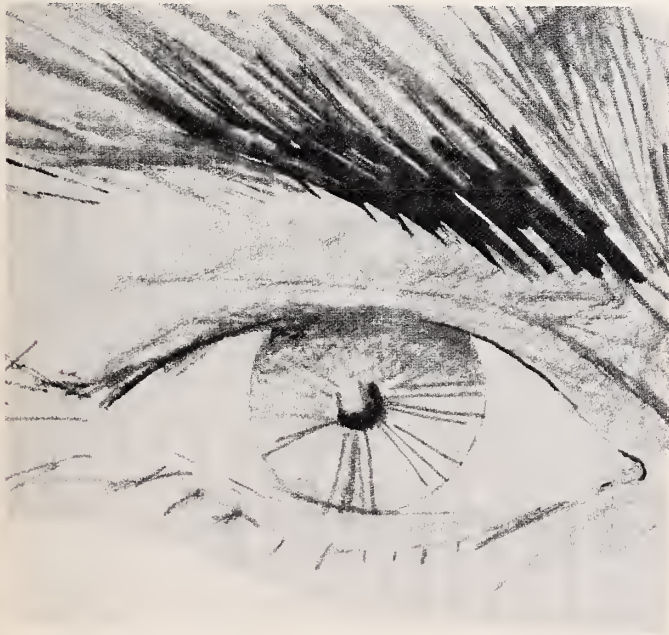
Simple voice communication has been a problem for soldiers in nuclear, biological and chemical settings because the protective mask muffles the voice. Before AudioPack entered service, mask communication could only be achieved by hand signals or by screaming. Both methods are considered ineffective and reduce mission performance by as much as 50 percent.

AudioPack has achieved positive results in field exercises at Fort Stewart, Ga., Fort Ord, Calif., and in South Korea. The 6 ½ pound AudioPack slips on like a backpack, allowing for free use of the hands and doesn't restrict movement.

Florida drinking exemption repealed

Florida recently repealed its military drinking exemption so now military personnel must have been born on or before June 30, 1966, in order to legally drink alcoholic beverages in Florida. The requirement went into effect Oct. 1, 1986.

House Bill 706, which passed during the 1986 Legislature, repealed an exemption which allowed active duty military members, 18 years and older, to purchase, consume and possess alcoholic beverages. This action helped put Florida in compliance with a federal mandate requiring all states to raise the legal drinking age to 21 by Oct. 1, 1986, or face losing federal transportation funds.



Seeing eye to eye

Civilian and military police are being "armed" with a new intoxication test that can be beaten one way—by not drinking and driving.

The test relies on involuntary eye movement. It's being used around the nation and in the armed forces to spot drunken drivers. The procedure requires suspects to follow an object, such as a penlight, with their eyes. The officer will move the object horizontally 50 to 60 degrees, causing the suspect's eyes to follow the direction of movement.

Experts say a sober person's eyes will move smoothly as the test is given, but a drunk's eye movement will be jerky. "There's a marked jerky movement in the eye that is completely involuntary when blood-alcohol levels are above .10 percent," said Dr. Arol Augsburger of the Ohio State University College of Optometry. Augsburger said the test can't be faked. Most states consider a .10 blood-alcohol level as evidence of drunkenness.



This M60A1 tank's crewmembers know their gun turret systems will operate with deadly accuracy during wartime and exercises thanks to tank turret repairmen.

Turret men

story and photos
by Linda Mitchell

The Marine Corps' M60A1 tank rolls uninhibited over almost any terrain. Despite its jolting ride, the tank can be made to aim its .105mm cannon and eliminate most targets, as it maneuvers through an active combat zone.

In combat, being able to maneuver the tank's turret into position is necessary to the gunner's ability to fire the gun.

"Say, for example, that our M60A1 is engaged in a combat situation with an enemy tank," said Sgt. Eduardo P. Callanta II, a tank turret repairman. "The M60A1 can rotate and reverse, and the gun can be raised or lowered. But, if the M60A1 gun's turret

Sgt. Eduardo P. Callanta makes some adjustments and repairs to systems inside the tank's turret.

becomes inoperative, or if the gun jams or misfires, it could mean the difference between life and death for the tank crew."

Callanta is assigned to the Tank Maintenance Platoon, 2nd Tank Battalion, Headquarters and Service Co, Marine Corps Base Camp Lejeune, N.C., where he maintains the M60A1 tank turret's electrical, mechanical and hydraulic systems. "The gun turret rests on top of the tank body," Callanta said. "The turret rotates 360 degrees, and the cannon can be raised or lowered by activating the gun's hydraulic maneuvering and stabilizing systems.

"Tank turret repairmen make sure the hydraulic systems operate smoothly by checking the hydraulic fluid regularly and repairing or replacing clogged fluid lines. These preventive measures eliminate chances of explosions and serious injuries to personnel," he explained.

The turret's stabilizing mechanism keeps the gun trained on the target. "Once the turret locks on to the target, the stabilizing system compensates for any tank movement, even when the tank is traveling over hills or rough terrain," Callanta said.

"Turret repairmen maintain the stabilizer's hydraulically-operated shock absorbers, enabling the gunner to effortlessly raise and lower the gun," Callanta continued. "Electrical impulses that activate the system control the gun's movement. If the impulses are interrupted, the stabilizing system won't operate properly, and we must go in and make repairs."

Tank turret repairmen also maintain the gun itself. "We check the gun's bore (barrel) using a borescope, a tube with a small mirror at one end. This enables us to inspect the metal inside the barrel for cracks, pits and worn spots.

"Additionally, we measure the gun's ammunition loading tube to ensure that metal hasn't worn away after so many ammunition rounds have been fired. Making these repairs prevents the round from back-firing and the barrel from exploding. Turret repairmen remove and replace unserviceable cannons and check the new guns for defects before installation," Callanta said.

The nine-week tank turret repairman school at Aberdeen Proving Ground, Md., teaches the basics of making such repairs. However, turret repairmen must first train at Aberdeen and work as tank body repairmen before training as turret repairmen.

"Because the turret and gun operate off the tank's engine power," Callanta explained, "repairmen wishing to work on the turret must first understand the



main power source's operation. The M60A1's power source is a 1750-horsepower D-12 diesel engine, and tank maintenance personnel receive considerable training in engine repair and maintenance as tank body and turret repairmen. Turret students also dismantle each portion of the turret to better understand its operations."

The duel training is important when the tank platoon moves out to the field. Repairmen join the battalion about five times a year on extended field training exercises, transporting maintenance equipment and spare parts. Because turret repairmen are experienced in tank body repair, they can also assist tank repairmen. Additionally, tank turret repairmen often deploy with the tanks during one-day live fire exercises.

M60A1 tank crews place their lives on the line every time they enter a combat zone. But with tank turret repairmen working to prevent malfunctions in the gun turret systems, the crews know they can rely on their tank to meet the enemy on any terrain, at any time, with deadly accuracy.

tidbits and technology



Marine Corps history

How many Marines are recipients of the Medal of Honor? Who was the first Medal of Honor recipient? How many Medals of Honor were presented posthumously?

The answers to these and many other questions can be found at the Research Library section of the Historical and Museum Branch at the Washington Navy Yard.

With more than 40,000 books, periodicals, microfiche and other materials, the library provides a wealth of Marine Corps lore and history.

"Many people aren't aware they can come here and do research," said Evy Englander, a librarian. "If people are looking for a particular book, we can research it either through the card catalog index or by subject, title or author. We often lend books to other libraries throughout the United States."

Another facet of the research section is the command chronology room. This section maintains chronological events of Marine Corps units in six-month increments. Although names of individual Marines may not be evident in the chronologies, the units they served with, in Vietnam for instance, can be researched for operations that the Marine may have served in.

Spending a day at the Historical and Museum Branch at the Washington Navy Yard can open new doors to questions about the Marine Corps and the men and women who have served so proudly. The museum is open to the public from 8 a.m. to 4:30 p.m., Mondays through Fridays; from 10 a.m. to 4 p.m., Saturdays; and from noon to 5 p.m., Sundays. The museum is located at Marine Corps Historical Center, Building 58, Washington Navy Yard, Washington, D.C. 20374-0580.

POW and MIA issues

Admiral William Crowe Jr., chairman of the Joint Chiefs of Staff, reassured the National League of Families of American Prisoners and Missing in

Southeast Asia of this nation's continuing commitment and of recent progress in resolving the POW and MIA issue.

He said that intelligence priorities for the POW and MIA issue have been "refined" to bring the "entire intelligence apparatus to bear more directly on the problem." He also stated that the governments of Vietnam and Laos are becoming increasingly more responsive to the concerns of the United States regarding the missing in action and prisoners.

Crowe said that efforts were continuing to locate and free any live Americans who may still be in Southeast Asia. "The U.S. government operates on the assumption that at least some Americans are still being held captive, which we believe is the only position to take," Crowe stated.

"The United States presses for answers in the face of factors which might discourage nations without the resolve of America. This is what America is all about—mustering expertise and technology to overcome the adverse and unkind circumstances," he said.

Crowe added that despite hopeful signs, "This is a painful process and final success remains elusive."

Air Forces's new x-wing aircraft

The formal name of the Air Force's new x-wing aircraft is X-Wing Rotor Systems Research Aircraft and it's been described as a major advance in aeronautical engineering. It combines the vertical lift-off and hover characteristics of a helicopter with the high speed of a fixed-wing aircraft. It will land and take off vertically like a helicopter and, when in the air, move forward at more than 230 miles per hour.

The four-bladed rotor that provides vertical lift will be stopped in mid-flight to function as a fixed x-shape wing. Two of the blades will be swept forward at 45 degrees and the other two blades will slope back at the same angles.

Engineers believe the new aircraft will be valuable in certain air-to-air and air-to-ground tactical operations as well as search and rescue missions. It might also be used for airborne early warning, electronic intelligence and anti-submarine warfare.

X-wing was jointly developed by the Defense Advanced Research Agency and the National Aeronautics and Space Administration. The first aircraft rolled out of Sikorsky Aircraft's Stratford, Conn., plant Aug. 19, 1986. It was shipped to NASA's Dryden facility at Edwards Air Force Base, Calif., to begin a 15-month flight test program.

Coast Guard Security Force

by Rick Johnson

It's 11:35 p.m. and it's been a long, quiet four-hour watch for Petty Officer Minock. "Only 10 more minutes until my relief shows up and I can hit the rack," he thinks. After being relieved from monitoring the radar system in the fire control room, the exhausted Coast Guard petty officer makes his way back to his berthing space. Just before falling asleep, he recalls the small cargo vessel he had sighted and reported 30 minutes prior to going off watch. He says to himself, "I just know there's going to be a boarding!"

As he nods off, his intuition becomes reality. From the cutter's public address system comes the announcement, "NOW SET THE LAW ENFORCEMENT BILL," which rousts him from his bed. Minock, the senior fire control technician (FT) on board the Coast Guard cutter Bear, rushes to his appointed place of duty to prepare for a possible boarding.

"When we hear that announcement, it's our responsibility, as Weapons Department personnel, to ensure weapons and ammunition are passed out and the law enforcement gear is set up and ready to use," explained Petty

Officer 1st Class Michael Minock, petty officer in charge of the Bear's Weapons Department. "Also, a fire control technician will be on watch and another will be assisting a gunner's mate in manning one of the .50-caliber machine guns. Another FT will probably be on the boarding party," he continued. "All fire control technicians are assigned to boarding party teams which are involved with law enforcement. We (FTs and gunner's mates) are the Coast Guard's security force."

"Our fire power must always be in operation for any law enforcement situation," added Petty Officer 3rd Class Russ Stoerke, "because it's the situation that determines whether we'll need our .50s, .45 caliber pistols, riot shotguns or the 76mm gun."

The operation and maintenance of the Coast Guard's fire control system, the MARK 92, is the FT's primary mission.

"The MARK 92 computer system operates the cutter's radar and 76mm gun," explained Minock. "At the same time a target appears on the radar screen, a radio frequency (RF) energy bounces off that target. The computer system receives the RF and

determines the target's exact speed, distance and location. It then uses those calculations to aim the cutter's 76mm gun at the target," he continued. "Everything is automatic. With the MARK 92, all we have to do is push a button."

Training to be a fire control technician begins with the 10-week, self-paced basic electricity and electronics school. After the basic school, students begin 26 weeks of FT rate training. Both courses are at Great Lakes, Ill.

"After learning the basics, most FTs will attend the gunfire control school for the MARK 92 system either at Dam Neck, Va. or at San Diego for 29 weeks," Minock said.

"Our department's equipment must always be in top-notch condition while we're on patrol," added Stoerke. "If a vessel shoots at us while it attempts to escape, we must first be ready to immediately defend ourselves; and, second, have the offensive capability to make the vessel stop. That's why I feel that providing our cutter, crew and boarding parties with the best protection makes our job an important one," he concluded.

Weekend

Army Reservists

by Karen Murdock

The soldiers were working hard under the relentless July sun. It was hot and getting hotter as the afternoon wore on, but there was a job to be done. As the contents in another box was inventoried and sealed for shipment, more containers were being put together and the servicemembers rushed from their warehouse to the loading area, counting, carrying and packing more equipment.

"Our unit is in the middle of a mobilization exercise," explained Sgt. 1st Class Dave Sanderson, a technician and member of the 4th Training Brigade, the Army Reserve unit at Fort Story, Va.

During a mobilization exercise, all administrative files, supplies and other essential equipment needed by the reserve troops once they were on active duty,

is inventoried, packed in crates and loaded on 14-ton, flat-bed trucks.

"If an actual emergency existed and we were being called to active duty," said Sgt. Maj. M. Baxter Dendrick, the unit's sergeant major, "we would load the necessary equipment onto vehicles and proceed to one of the designated basic training units to perform our primary mission; that being to take over the infantry training duties from our active duty counterparts. However, because this is an exercise, the equipment won't be moved. This is hands-on experience in case we are faced with an emergency.

"In our unit, we have approximately 60 reserve drill sergeants, all of whom would train initial entry soldiers in the infantry skills if this unit were to go active duty," Dendrick explained. "During our monthly weekend drills, our time is spent maintaining the



Another crate is loaded on the tractor trailer.



The forklift operator delivers more

nd Drill

epare to move out

skills of our drill sergeants. It gets a little hectic around here at times. Since we only have two days a month to get everything accomplished, such as updating personnel records, getting dental X-rays, and scheduling training, we have to manage our time wisely and work as a team," Dendrick explained.

"During this particular drill weekend, we have the mobilization exercise. In addition to packing up needed equipment, we also go over each member's health and personnel records to ensure all the information is correct," Dendrick said.

"Each member of this unit is a professional. We have corporation chief executives, doctors, lawyers, school principals, construction engineers, service station attendants, truck drivers, department store clerks, and aeronautical engineers. Each member contributes their resources and experiences to the unit

and together we're a great team," he said.

"I believe the reserves offer a wonderful opportunity for any young person. Their initial training on active duty provides them with invaluable experience in time management and how to be self sufficient, in addition to receiving a paycheck," Dendrick concluded.

The mobilization exercise is in full swing. The reservists continue to pack equipment and the flat-bed trucks are half loaded. The fork lift operator raises another packed pallet onto a truck, carefully watching the guides who give him hand signals on his progress.

Reserve Sgt. Abigail Miller stands guard over the already loaded equipment. She smiles and says, "Guess what? We get to do this all over again tomorrow...only in reverse!"



Watching the forklift carefully, a Reservist gives hand signals to the forklift operator as equipment is loaded on the truck.

pallets to the exercise site.

Flying filling stations

story and photos
by Linda Mitchell

Early one cold, dark, winter morning, several Air Force EF-111A Raven fighter pilots waited in their jets on the flightline at Pease Air Force Base, N.H., preparing for the final leg of their journey to England. Because the fighters would travel nearly seven hours nonstop over several thousand miles of ocean and Greenland's icy wastelands, the Air Force had arranged to send along its own flying "filling stations."

On another stretch of flightline, the "filling stations," KC-135 stratotankers, were being loaded with jet fuel which would be transferred in flight. The Raven crews didn't need to worry about running low on fuel, since each tanker can haul nearly 200,000 pounds of JP-4 fuel in seven outer fuel tanks. This amount of fuel equals about 30,000 gallons of gasoline.

"Similar to the Ravens' mission, most refueling operations are pre-scheduled," said Staff Sgt. Ken Hudelston, an inflight refueling operator with the 509th Air Refueling Squadron at Pease.

"The receiving fighter pilots tell the refueling operators how much

By watching the dials in front of him and moving the control lever with his left hand, an inflight refueling operator maneuvers the refueling boom to follow the movements of the aircraft being fueled. (U.S. Air Force photo)



fuel they will need. The refueling operators pass this information to the fuels specialists.

"Fuels specialists pump those thousands of pounds of fuel into the KC-135s' fuel tanks, but it's the inflight refueling operators, also called boom operators, who calculate the weight and balance of the fuel loads on the KC-135s," he explained.

Boom operators observe refueling operations through a bubble window in a small sheet metal pod under the plane's belly.

"Refueling operators initially calculate the weight and balance of the load on paper," said Airman Dan Wells, an inflight refueling operator. "They use a slide rule to determine the weight and balance and to find the aircraft's center of gravity. Refueling operators then supervise the tanks' fill-up with this plan in hand."

A couple of hours into the Ravens' flight, the pilots contact the stratotankers by radio for refills. To transfer the fuel from a KC-135 to a "thirsty" EF-111A Raven, the refueling operators use a boom, or refueling pipeline, which extends from the rear underside of the aircraft. "Boom operators lay on their stomachs inside a small sheet metal pod under the rear of the plane's belly and observe refueling operations through a bubble window," Hudelston said.

"At the end of the boom are small wings," Wells said. "These wings work in conjunction with the boom operator's control lever (comparable to a video game control stick). The boom operator uses this lever, along with controls on a panel, to operate the boom. With these controls, the

operator can extend, contract, raise or lower the boom, and hold it steady.

"After the receiving pilot is cleared to come in for refueling, he approaches and stabilizes his aircraft about 50 feet behind the tanker," Wells continued. "The boom operator lines the boom up with the receiver's fuel receptacle, located on top of the aircraft to the rear of the cockpit. Toggles inside the receptacle hook the boom and hold it in place during the refueling operations.

"After the KC-135 co-pilot turns on the pumps," Wells added, "the boom operator and boom follow the receiver's motion as 6,500 pounds of fuel flow through the pipeline per minute."

The co-pilot informs the boom operator when all the designated fuel has been off-loaded. The boom operator then disconnects the boom and sends the Ravens on their way.

When not carrying fuel, KC-135s can transport 83,000 pounds of cargo or up to 80 fully-equipped paratroopers.

Aside from their primary refueling duties, boom operators perform several other jobs aboard the aircraft. When not hauling fuel, each KC-135 can transport either 83,000 pounds of cargo or up to 80 fully-equipped paratroopers. "As loadmasters, inflight refueling operators are responsible for all passengers and cargo," Wells said. "Similar to commercial airline stewards, refueling operators brief passengers about the KC-135's safety features and what will be available to them in flight. They also ensure the cargo is balanced and strapped down safely."

Inflight refueling operators also act as safety observers for the pilot during takeoffs and landings, and they assist the navigator during the flight. "Using a sextant, boom operators help the navigator chart the airplane's course and location by the sun, moon and stars," Hudelston said.

Initial training also includes a short water survival course and a month-long land survival course.

To do these jobs, inflight refueling operators receive enlisted undergraduate aviation training at Sheppard Air Force Base, Texas. After learning basic aircraft operations, they attend a four- to six-month boom operator course at Castle Air Force Base, Calif., for classroom and hands-on experience during KC-135 training flights.

Boom operators also attend a short water survival course and a month-long land survival course at Fairchild Air Force Base, Wash.

After school, more training becomes available on the job. "At school, students learn basic loadmastering (balancing and loading) and boom operator techniques," Hudelston explained. "Unit training instructors then polish the new trainees' skills and cargo-certify them during unit checkrides. Additionally, all inflight refueling operators must fly at least one refueling operation every 45 days to remain operator-qualified.

"Inflight training and performing regular missions involves a lot of flying time," he continued. "Crews often fly three or four times a week."

This teamwork becomes a necessity when coordinating missions, particularly one as involved as refueling several "thirsty" inflight Ravens on their way home.

Weather

story and photos
by Linda Mitchell

When Hurricane Gloria ravaged the eastern United States coast in 1985, the military services along the Virginia and North Carolina coast were well prepared.

Based on weather reports, ships assigned to Norfolk Naval Base were advised to sail out into the Atlantic Ocean, many nautical miles away from potentially hazardous piers, and smaller Coast Guard patrol boats were anchored securely in port. Aircraft in the two-state area were flown out of state or placed in reinforced hangars, as were Marine Corps and Army tanks and other ground vehicles.

Air Force, Marine Corps and Navy weather observers and forecasters assigned to that area helped avert a major military disaster by monitoring the progress of the storm and providing commanders with continuous weather updates.

"The most common method for observing and monitoring quickly changing weather patterns is visual—from a ship at sea, on the ground, from planes in the air or in remote observation site (ROS) towers on land," said Air Force Staff Sgt. Jodi Richmond, a weather observer at Eglin Air Force Base, Fla.

"Observers in the ROS use binoculars to monitor immediate weather pattern changes which could effect flying operations

Weather forecasters apply the information observers gather to make immediate and long-range forecasts and charts.



Marine Corps forecasters and observers use charts to plot weather

within a 200-nautical-mile radius," she explained. "When necessary, they can report their observations directly to pilots through the air traffic control tower communication system. The findings are also transmitted to the base weather station to be included in its hourly recorded weather updates."

"While ROS observers remain in their towers," Richmond continued, "weather observers nicknamed 'hurricane hunters' fly into the eyes of hurricanes in KC-130 cargo aircraft specially equipped with weather tracking devices, including a dropsonde. The dropsonde instrument is parachuted from the aircraft into the hurricane and transmits data about the hurricane, such as wind direction and speed, back to base."

"Eglin's weather specialists also use a large rawinsonde balloon with weather information-gathering equipment attached to make observations," said Sgt. Rick Couch, a weather observer at Eglin. "As the balloon floats upward through the atmosphere, observers monitor its flight using

patterns which may affect base operations.

binoculars and a radio direction-finding device. The balloon's information-gathering equipment measures wind velocities and other pertinent weather data at various atmospheric levels. This information is then transmitted back to a computer in the rawinsonde ground station.

"The computer translates these signals into readable information such as wind speed and direction, dew point averages and temperatures. This information is relayed to the base weather station for inclusion in their next hourly report," Couch continued.

"Another observation device we use is a cloud height indicator, which measures the distance between the ground and the cloud's base," said Marine Corps Cpl. John Horner, an observer at Marine Corps Air Station Cherry Point, N.C. "It measures how high the clouds are and indicates what the cloud ceiling is. The indicator also makes atmospheric pressure readings at various elevations and computes wind direction and speeds."

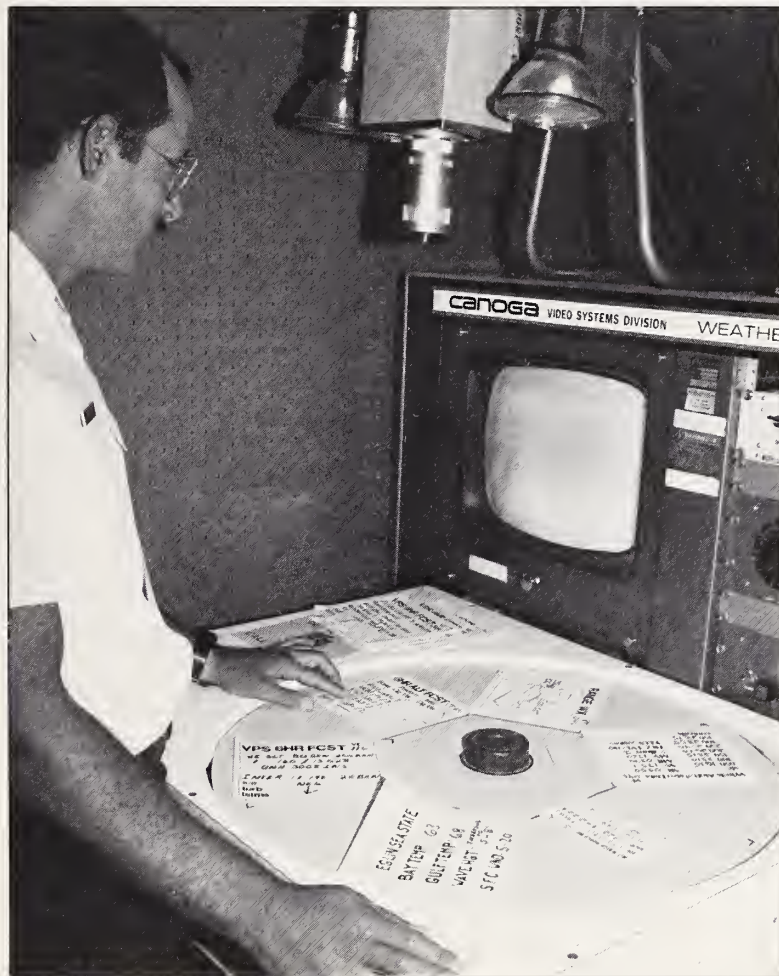
watchers

"Military weather observers learn to use a wide variety of sophisticated radar, electronic and satellite weather information-gathering devices during the 12-week joint service weather observer school at Chanute Air Force Base, Ill.," said Lance Cpl. Carol Rogge, another Marine Corps observer at Cherry Point. (The Army and Coast Guard rely on the other services and commercial weather agencies for weather information.)

Military base weather station observers worldwide use the knowledge gained at the observer's school to gather local weather data and prepare hourly weather reports. These reports are teletyped over the Continental Meteorology Data System (COMEDS) to the Automatic Digital Weather System (ADWS) at Carswell Air Force Base, Texas.

Carswell computers combine this worldwide information with weather data received from the National Weather Bureau and Global Weather Central at Offutt Air Force Base, Neb., and transmit this combined report back through the COMEDS to all bases. "The whole process takes less than 10 minutes," Richmond said, "beginning at five minutes to the hour. By five minutes past the hour, all stations have complete and accurate worldwide weather data."

"Weather forecasters then apply the information observers gather to make immediate and long-range forecasts and charts," said Air Force Tech. Sgt. Charles Bonini, a forecaster at Eglin. "Using these charts and the knowledge we gained at the 22-month forecasters' school at Chanute, we analyze significant changes in temperature, moisture and wind fields and forecast what could happen in the next few days."



Air Force forecaster Tech. Sgt. Charles Bonini transmits weather information over a closed-circuit television link to base flying squadrons.

In addition to being concerned with the above-surface weather, Navy weather personnel must consider patterns occurring below Earth's ocean surfaces. "Oceanography has been incorporated into the Chanute curriculum for Navy observers and forecasters, extending the courses a few weeks beyond those of the other services," said Petty Officer 1st Class Bob Skiba, a forecaster at the Naval Oceanographic Command Detachment, Naval Air Station, Brunswick, Maine.

"With this oceanographic knowledge, we can consider how weather and below-surface ocean

patterns, like the waves and currents created by Hurricane Gloria, affect each other and shipboard radio communications and flying operations," Skiba added.

"Reading" the Atlantic Ocean's and Hurricane Gloria's rapidly-changing patterns enabled Navy, Marine Corps and Air Force weather specialists to help complete the overall weather 'picture' for the entire east coast area. Meeting this challenge, their predictions were instrumental in saving thousands of lives and protecting millions of dollars of military equipment.



Seaman Clyde Cassoult holds the sledge hammer as BM1 Jones shows him where to hit the pin for "letting go the ship's anchor" on board the USS El Paso. BM3 Nick Restaino (right foreground) assists in the instruction, while Seaman Samuel Merculof watches. (Photo by John Black)

Anchors



by Rick Johnson

Man has been venturing out to sea for thousands of years. Since that time, technological advances have changed many of the ways sailors perform their duties. However, sailors in one of the Navy's oldest sea-going rates still rely on basic seamanship skills and naval tradition to perform their duties.

"In the days of sailing ships," explained Petty Officer 1st Class Earl Jones, a boatswain's mate (BM) aboard the amphibious cargo ship USS El Paso, "the captain's second in command was known as the first mate, or bosun. He administered punishments, distributed work assignments, performed ceremonial honors and was responsible for repairs and up keep of the ship, its sails and rigging."

Today's boatswain's mates are still the expert seamen. "We operate small boats and may command larger vessels such as tug boats and patrol craft," Jones added. "BMs repair and maintain the ship's rigging (cable and line), as well as supervise deck department personnel in painting, handling and caring of the ship's deck and its equipment, which includes ground tackle (anchors, anchor chains and miscellaneous anchor gear) and heavy lift-cargo systems. Additionally, we sound the traditional boatswain's pipe during ceremonial honors.

"BMs ensure all deck department responsibilities such as anchoring and mooring, cleaning and preservation of the ship, underway replenishments (taking on supplies while at sea) and amphibious operations are performed properly and safely," he continued.

One of the more important tasks performed by the 'boats' and deck department personnel is anchoring. BMs must be prepared to 'hoist' and drop anchor at any given hour of the day. "Dropping 200 tons of anchor and chain can be a dangerous operation if safety precautions are not followed," warned the seasoned boatswain's mate.

Besides controlling the anchor, the BMs must be able to read its actions once it's in the water. For example, since the BM can't see the anchor underwater, he must know by watching the chain whether the

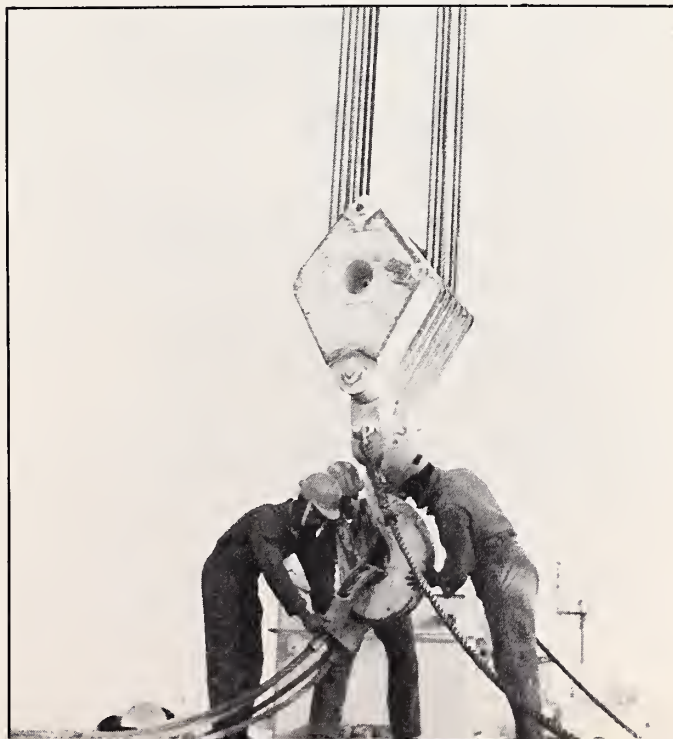
Aweigh

'anchors aweigh' (off the bottom), dragging or under too much strain.

Mooring the ship (tying-up to a pier) is another deck force responsibility which BMs are in charge of. "We use six standard mooring lines (five-inch diameter nylon rope) and two larger storm lines," Jones explained. "Attached to each mooring line is a 'heaving line' (quarter inch cotton rope with a large knot on the end called a 'monkey's fist'), which we toss to sailors waiting on the pier. The sailors on the pier pull the heaving line until they have the mooring line in hand. Once in hand, it is placed over a securing device called a cleat or bollard. These lines are then attached to the ship's winches. As the winches take in the mooring line, the ship is pulled into position at the pier."

Boatswain's mates learn these basic seamanship skills through on-the-job training. "The experienced BMs teach these skills to many recruits (E-3s and below) coming into the fleet," Jones said. "These unseasoned recruits usually spend their first six to 12 months with us in the deck department before selecting the career field of their choice, including the BM rate.

"We are the supervisors of the deck force," concluded Jones. "We give new sailors their first taste of the real Navy. When boatswain's mates perform or supervise a task, it's done professionally and with centuries of naval pride and tradition behind it."



Three of USS El Paso's prospective boatswain's mates hook up boat slings to one of the ship's large landing craft. (Photo by John Black)

Freedom's birthplace

story and photos
by Linda Mitchell

The Concord Bridge, in Concord, Mass., is the subject of a noted hymn written by Ralph Waldo Emerson in 1837.

The Concord Hymn, honoring the embattled farmers who "fired the shot heard round the world", was first publicly sung for the dedication of the Battle Monument at the bridge. This monument honors the men who fought and died in the first battles of the Revolutionary War on April 19, 1775.

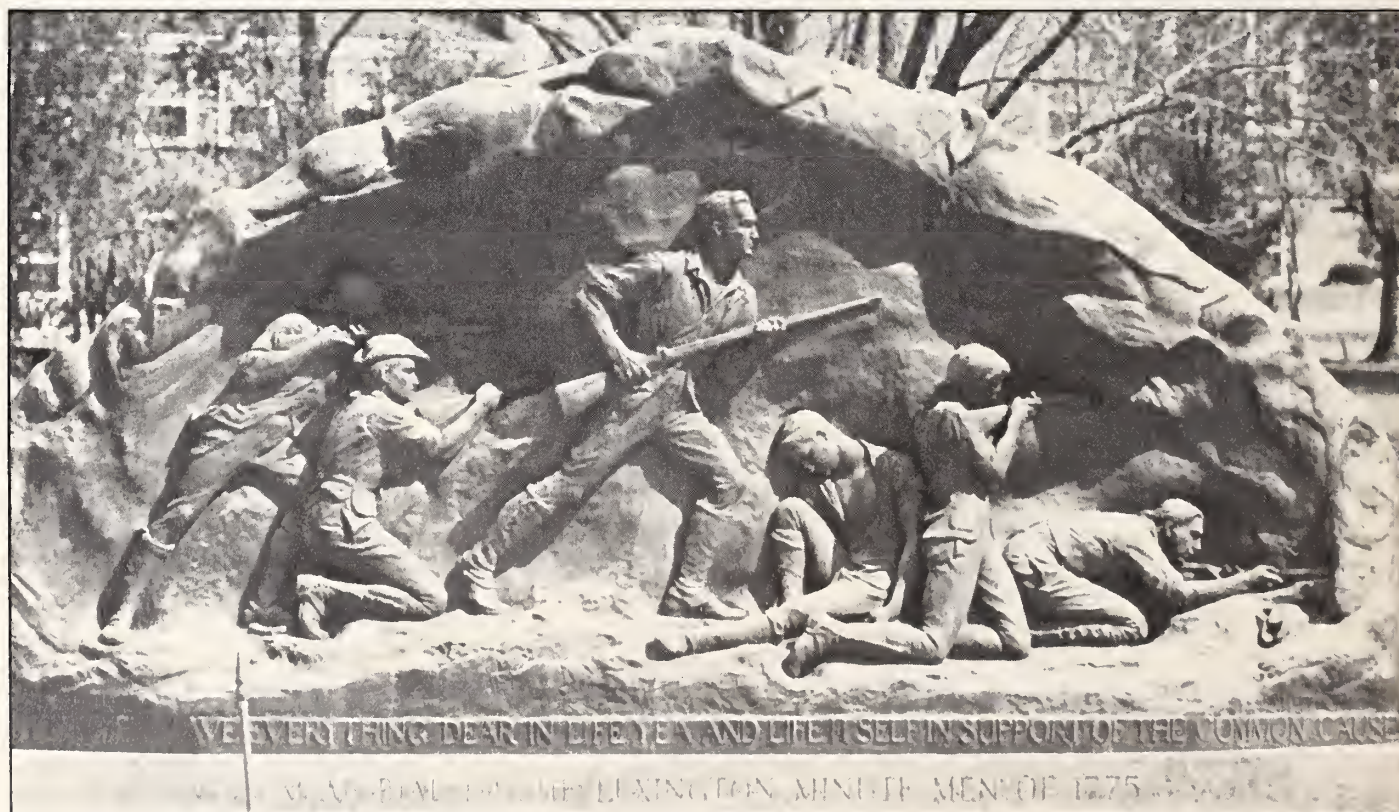
The bridge, with the Battle Monument at one end, spans the Concord River, just outside of town. Facing the monument at the other end is the Minuteman Monument, commemorating the 100th anniversary of the initial battles fought for American liberty.

Visitors, including military personnel assigned to

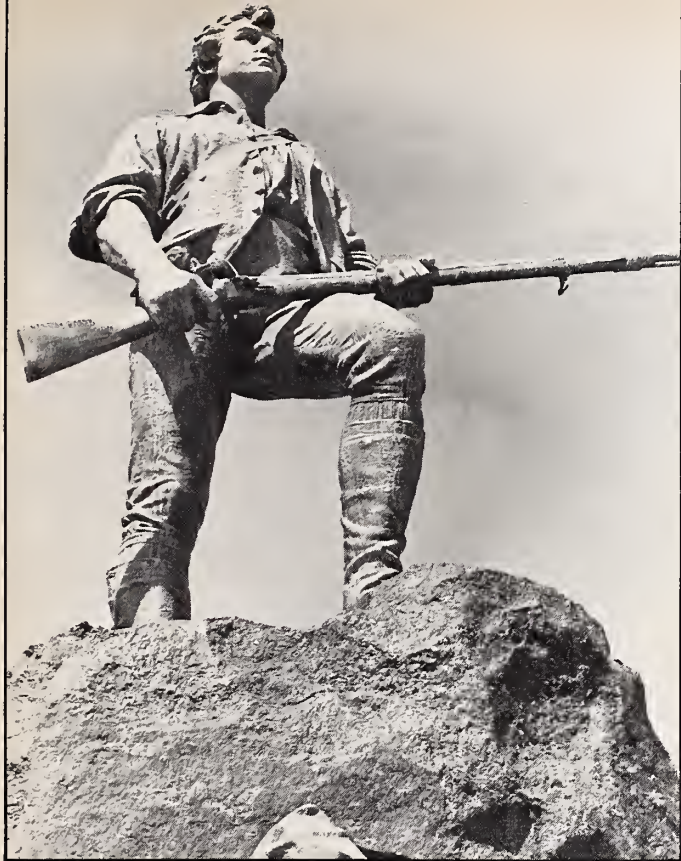
neighboring Hanscom Air Force Base and Fort Devins, have the opportunity to view these monuments and to stroll down the streets of Lexington and Concord. They can imagine historic events by visiting places where the citizen soldiers and Redcoats fought. They can also travel Battle Road, which parallels the route marched by the British and colonists from Lexington to Concord and back.

Many of the older buildings in the two cities, which are open to the public, were built in the early 1700s. One of those buildings to visit is Lexington's Buckman Tavern. Capt. John Parker and about 40 Minutemen met in this tavern in response to Paul Revere's early morning cries of "the British are coming!". To mark where the Minutemen fought, a boulder, bearing a plaque, marks the line on the village green where they stood.

As the battle moved through Concord, the Redcoats were defeated by a group of Minutemen.



The memorial to the Lexington Minutemen of 1775 was erected in 1949 on Lexington's village green. It contains the names of the Minutemen who met on the green during the morning engagement on April 19, 1775.



The Minuteman Statue overlooks Lexington near the village green. The statue and fountain at its feet were a gift to the city and dedicated April 19, 1900.

Retreating through Lexington, the British stopped at Munroe Tavern, about a mile from Lexington's green, to pick up their wounded. The tavern, which had been commandeered by Earl Percy as his British headquarters and hospital, is also open to the public.

Modern-day Minutemen have taken over the watch duties of their 1775 counterparts. Local Minuteman companies, dressed in colonial costume, present musket firing demonstrations at the bridge on summer and fall weekends.

The modern military is represented by Air Force men and women assigned to Hanscom Air Force Base, located between the two towns. Several thousand civilian and military personnel are assigned to Air Force Electronic Systems Division, the Air Force Geophysics Laboratory, and other support divisions of Air Force Systems Command. Fort Devins, located about 15 miles northwest of Concord, has more than 13,000 active duty Army personnel and civilians assigned to units including the 10th Special Forces Group (Airborne) and the Army Intelligence School.

Similar to 16th and 17th century settlers, newcomers unaccustomed to New England weather may find it harsh, with cold, damp winters and hot, humid summers. However, mild springs and early "Indian summer" falls are enjoyable for hunting, camping and other outdoor sports, as well as visiting the historic battle sites.

Lexington and Concord, however, are famous for more than just their Revolutionary War battles. During the 1800s, Concord was home to authors and philosophers, including Louisa May Alcott and her father, philosopher and Civil War chaplain Bronson Alcott; Henry David Thoreau and Nathaniel Hawthorne. Emerson had visited Concord often as a child, and he moved there permanently in 1835 to the house which remains on Cambridge Road.

Emerson owned a tract of land near Waldon Pond, which he loaned to Thoreau in 1845. Thoreau lived in a cabin on the land for about two years in an attempt to discover how much so-called civilization he could do without. His experiences are documented in his book, "Waldon." Twentieth-century 'philosophers' can contemplate life while taking advantage of the pond's ample swimming, picnicking and fishing attractions.

Hawthorne, and his bride, Sophia, arrived in Concord in 1845, and resided for three years in the Old Manse (vicarage) once occupied by Emerson's grandfather. Here, Hawthorne wrote "Mosses from an Old Manse", describing his and Sophia's life there. The Old Manse overlooks the Concord battleground, and is open to the public most of the year.

Until the mid-1800s, the Alcotts lived in Orchard House, the setting for Louisa's first books, "Little Women" and "Little Men".

The taverns, battle sites and homes of Revolutionary War soldiers and authors are only a few of the attractions awaiting visitors to this Massachusetts area. The towns offer theaters, restaurants serving American and foreign cuisines, a lively nightlife and a wide variety of hotels and inns. There are many intriguing antique and souvenir shops to suit every taste.

Boston, Salem, and other large cities are within a 50-mile radius. They offer daily and weekly historic walking tours, a multitude of museums, a variety of colleges and universities, and sports attractions including pro football, basketball, ice hockey and baseball.

Unlike the unwanted invaders of 1775, modern-day military and civilian visitors to Lexington and Concord are greeted by smiling, friendly residents instead of patriots armed with muskets.

Aircraft arrest!

story and photos
by Linda Mitchell

"Pilots often find that landing their aircraft is as routine as pulling the family car into the driveway. However, on those rare occasions when something happens to the aircraft, it's the job of aircraft recovery specialists to ensure minimal personal injury and damage during emergency landings," said Lance Cpl. Lisa Dedeaux, assigned to Marine Corps Air Station Cherry Point, N.C.

Cherry Point aircraft recovery specialists accomplish this mission by operating the E-28 arrest-

ing gear. "The E-28 equipment, which is permanently positioned near the end of the runway, operates in a simplistic, but accurate manner to halt aircraft," Dedeaux explained.

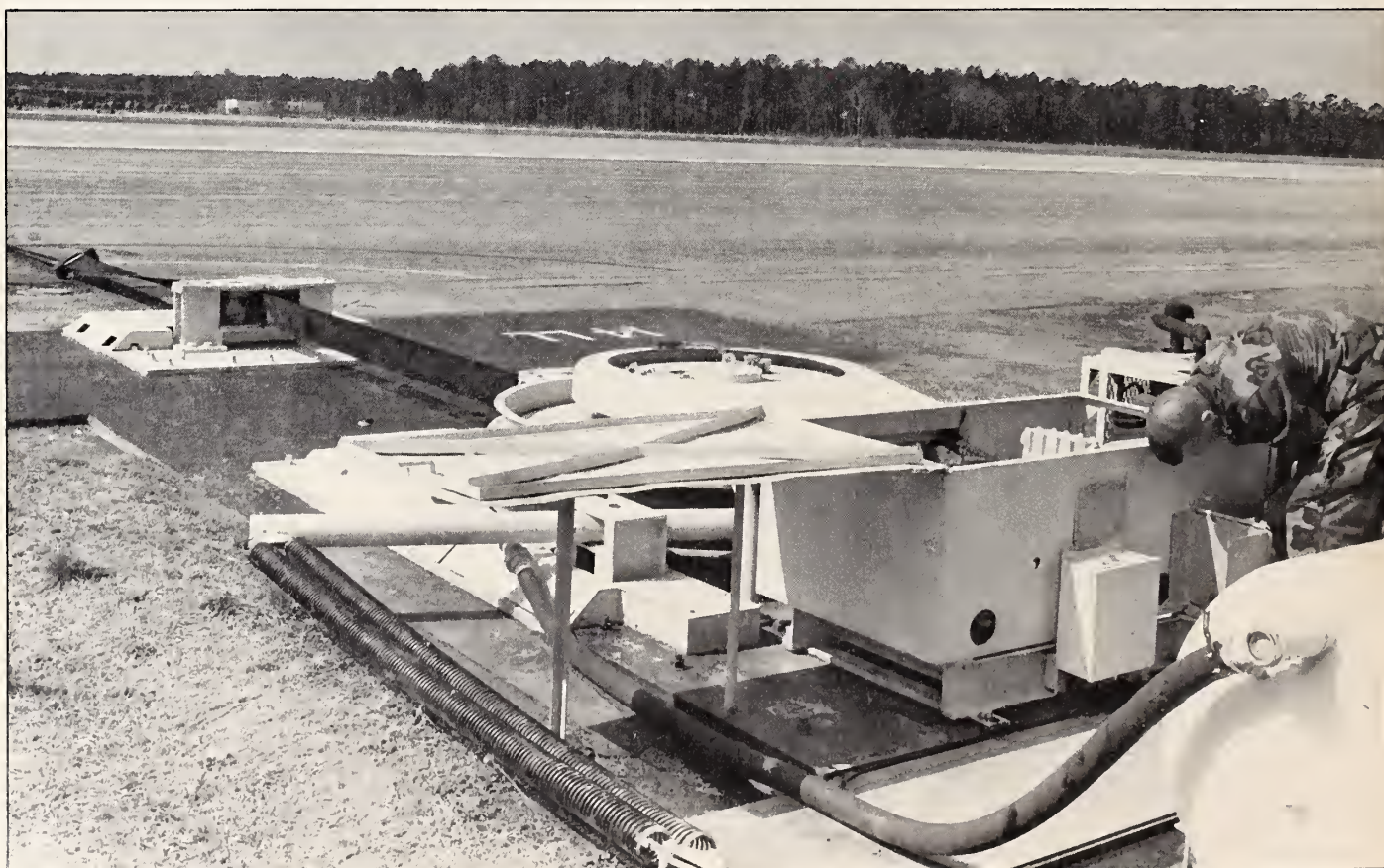
"A two-inch-around steel cable, or deck pendant, stretches across the runway," she continued. "Each end of the cable attaches to an eight-inch-wide nylon tape, which, in turn, winds onto reels. These tape reels sit on top of absorbers, which are tubs filled with antifreeze. As the tapes and cable are pulled out by the aircraft, the absorbers receive the shock and pressure of the aircraft's pull, creating a reverse braking action.

The antifreeze prevents damage to the E-28s caused by friction heat.

"When a pilot needs the arresting assistance of the E-28 for his aircraft," Dedeaux added, "he lowers a large steel hook attached to the aircraft's tail section. The pilot then guides his aircraft down toward the awaiting cable. The hook snags the deck pendant which, as it plays out, eventually brings the aircraft to a halt."

An aircraft recovery specialist, called a point man, positions himself near where the aircraft will finally stop. He then radios the pilot to "raise hook" and release the cable.

After the cable is released, the



point man radios his partner, called a deck coordinator, who is positioned on the runway between the two E-28 arresting cable engines. The deck coordinator signals two other specialists to engage the E-28 engines, powering the drive shaft to turn the two tape reels and retract the cable.

Aircraft recovery specialist students study E-28 equipment operations and maintenance during the six-week aircraft recovery specialist school at Naval Air Station Lakehurst, N.J.

Besides studying the E-28 system, aircraft recovery specialist students also learn to maintain and use the E-5 chain arresting system. "The E-5 chain arrestor is used as a backup system in the event the pilot misses the E-28 gear," said Cpl. Gerald Z. Elliott, a Cherry Point aircraft recovery specialist.

"The E-5's two 90-foot chain link sections lie parallel to the runway's side edges," he continued. "The links graduate in size from 20-pound links up to 140-pound links. The pilot snags the aircraft's hook on either of the two cable pendants stretched between the two chains across the runway 30 feet apart, and the chains quickly snake out.

"By the time the largest links are played out, the total weight being dragged should be enough to halt the aircraft," Elliott explained.

"On a daily basis, aircraft recovery specialists must ensure both chains remain untwisted, and that the ground beneath the chains remains firm. While smoothing out any twists, they continuously look for signs of corrosion," Dedeaux said. "If corroded links are not replaced, they couldn't handle the strain produced by an airplane during an emergency landing."

In conjunction with these arresting gear systems, aircraft recovery specialists operate a transportable shore-based Fresnel

Preventive maintenance checks, including checking fluid levels, is an important part of making sure the E-28 arresting system remains ready for emergencies.



As the cable of the E-28 arresting gear stretches across the runway, Cpl. Gerald Z. Elliott prepares to do a maintenance check on the engine.

Lens Optical Landing System (FLOLS). This is an elaborate set of transportable landing lights positioned at the end of a runway during an emergency. The pilot sights in on the FLOLS lights and judges whether he's coming in too high or too low for a safe landing. Daily maintenance on the FLOLS includes changing any spent light bulbs and checking all electrical connections.

Another cable arrest system students learn to maintain and operate in the aircraft recovery school is the Mach-21, or M-21, arresting gear. The M-21 diesel engines operate on the same principle as the E-28's, but the M-21

is primarily used to practice aircraft carrier landings on landlocked runways. Though not used at Cherry Point, it can also abort takeoffs and aid emergency landings at aircraft speeds of less than 130 knots per hour.

"Although maintenance involves the majority of our daily work," Elliott continued, "during an emergency situation, our most important and gratifying responsibility is saving the lives of the crew members and halting the airplane with as little damage as possible. Knowing the pilot depends on our equipment to do its job makes the long, hard maintenance hours worthwhile."

UNIVERSITY OF FLORIDA



3 1262 09683 0624

BULK RATE
POSTAGE FEES PAID
DEPARTMENT OF THE NAVY
PERMIT NO. G-9



Army weekend drill — page 12

Enthusiasm finds the opportunities and energy makes the most of them.

Henry S. Haskins

DEPARTMENT OF THE NAVY

Department of Defense
High School News Service
Bldg. X-18, Naval Station
Norfolk, Virginia 23511-6698

OFFICIAL BUSINESS

Penalty for Private Use, \$300